

Application No. 10/599,548
Response to Office Action dated October 13, 2009

Remarks

Applicants have received and carefully reviewed the Final Office Action mailed February 24, 2010. Claims 1-20 remain pending. Reconsideration and allowance of all pending claims are respectfully requested.

Allowable Subject Matter

The Examiner indicated that claim 9 is allowable, but requested that Applicant make two minor changes to claim 9. Applicant has made the requested changes, along with some other changes to the last paragraph of claim 9. Claim 9 is still believed to be in condition for allowance.

Claim Objections

Claims 1, 2, 7, and 12-16 were objected to because of lack of proper antecedent basis. The claims have been reviewed and amended such that proper antecedent basis is now believed to be present in all claims. Method claim 16 is believed to be in proper form, and thus no amendments were made to this claim.

Claim 2 was objected to because “in” should not have been deleted. Claim 2 has been amended to overcome this objection.

Claims 17 and 19 were objected to because independent claim 16 recites that the gas valve controller sends a “gas valve control signal”, and claims 17 and 19 refer to an “input signal”. Claims 17 and 19 have been amended to overcome this objection.

Double Patenting

Claims 1-8 and 10-15 were rejected on the ground of non-statutory double patenting over certain claims of U.S. Patent No. 7,586,213. Applicants will consider filing a terminal disclaimer in view of the ‘213 patent if and when the claims are indicated as being otherwise allowable.

Rejections under 35 U.S.C. § 103

Claims 1-8 and 10-20 were rejected under 35 U.S.C. § 103(a) as being unpatentable over Auer et al. (U.S. 4,118,750). Applicant must respectfully disagree.

Turning first to claim 16, which recites:

16. (Previously Presented) A method for controlling a gas valve, the method comprising the steps of:
determining if a gas valve controller is currently providing a valid gas valve control signal;
providing a direct current (dc) control voltage that is suitable for opening the gas valve if the determining step determines that the gas valve controller is currently providing a valid gas valve control signal;
maintaining the direct current (dc) control voltage as long as the gas valve controller continues to provide a valid gas valve control signal; and
providing a direct current (dc) control voltage that is suitable for closing the gas valve if the determining step determines that the gas valve controller is not currently providing a valid gas valve control signal.

In the Response to Arguments Section of the Final Office Action, the Examiner states “[t]he right sides of capacitors 161, 162 are interpreted as ‘the two output terminals for providing a control voltage suitable for controlling’ a vital relay”. Also, in the Response to Arguments Section, the Examiner states:

The circuitry needs the two alternating frequencies in order to keep the capacitors (161, 162) charged to open the relays. Thus, Auer does not disclose that the circuit of figure 2 can never sustain current in the windings. Rather, the reference teaches that the circuit of figure 2 cannot sustain current in the windings when the frequencies stop alternating in the proper sequence.

However, while this may be true, Auer et al. do not appear to maintain a direct current (dc) control voltage, and in particular, maintain a direct current (dc) control voltage “as long as the gas valve controller continues to provide a valid gas valve control signal”, as recited in claim 16. Instead, the voltage at the right sides of capacitors 161, 162 (i.e. the two output terminals for providing a control voltage suitable for controlling a vital relay per the Examiner) appears to alternate with the frequencies that are applied at the input terminals. More specifically, and as

detailed in Applicant's last response, Auer et al. state "the circuit of FIG. 2 cannot provide sustained current in either winding" [of the relay K]. That is, in Auer et al., the relay K has two windings including an upper winding and a lower winding (see, for example, Auer et al., column 4, lines 67-68). During normal operation, Auer et al. teach to pass a current through only one winding of the relay K at a time, and when the current is terminated in one winding, it is initiated in the other winding (see, for example, Auer et al., column 5, lines 1-5). The current seems to switch between the two windings when the first frequency signal switches to the second frequency signal, and visa-versa. As such, it would appear clear that Auer et al. actually teach away from a fail-safe circuit that maintains a direct current (dc) control voltage as long as the gas valve controller continues to provide a valid gas valve control signal, or provides a direct current (dc) control voltage that is suitable for closing the gas valve if the determining step determines that the gas valve controller is not currently providing a valid gas valve control signal, as recited in claim 16. In fact, Auer et al. would appear to actually teach away from such a circuit, particularly since the current in the two windings of the relay K must switch when the first frequency signal switches to the second frequency signal, and visa-versa, in order for the circuit of figure 2 of Auer et al. to operate for its intended purpose. In any event, Auer et al. clearly do not teach each and every element of claim 16, nor would there appear to be any motivation or other reason to modify the circuit of Auer et al. to arrive at the fail-safe circuit of claim 16. For these and other reasons, claim 16 is believed to be clearly patentable over Auer et al. For similar and other reasons, claims 17-20, which depend from claim 16 and include significant additional distinguishing features, are also believed to be clearly patentable over Auer et al. Reconsideration is respectfully requested.

Turning now to claim 1, which recites:

1. (Currently Amended) A fail-safe circuit for a gas valve, the fail-safe circuit comprising:

- an ~~at least one~~ input that can be connected to a control device for receiving an input signal from the control device;
- two output terminals for providing a dc control voltage suitable for ~~controlling a~~ opening the gas valve;

where the fail-safe circuit only supplies ~~[[a]]~~ the ~~dc~~ control voltage between the two output terminals of the fail-safe circuit ~~that is suitable for opening~~ ~~[[a]]~~ the gas valve when ~~an~~ the input signal ~~containing at least two different successive frequency signals~~ is provided by ~~[[a]]~~ the control device at ~~the~~ an input of the fail-safe circuit contains at least two different successive frequency signals; and

wherein the fail-safe circuit maintains the ~~dc~~ control voltage between the two output terminals of the fail-safe circuit as long as the input signal contains the at least two different successive frequency signals at ~~[[an]]~~ the input of the fail-safe circuit.

For similar reasons to those discussed above with respect to claim 16, as well as other reasons, claim 1 is believed to be clearly patentable over Auer et al. For similar and other reasons, claims 2-8 and 10-11, which depend from claim 1 and include significant additional distinguishing features, are also believed to be clearly patentable over Auer et al.

Turning now to claim 12, which recites:

12. (Currently Amended) A fail-safe circuit for a gas valve, the fail-safe circuit comprising:

~~an at least one~~ input that can be connected to a gas valve controller;

two output terminals for providing a ~~dc~~ control voltage that is suitable for opening ~~controlling a~~ the gas valve;

the fail-safe circuit configured to only supply ~~[[a]]~~ the ~~dc~~ control voltage between the two output terminals of the fail-safe circuit that is suitable for opening ~~[[a]]~~ the gas valve if/when the gas valve controller provides an input signal at the input of the fail-safe circuit that has at least two different frequency signals ~~to the at least one input of the fail-safe circuit~~; and

wherein the fail-safe circuit maintains the ~~dc~~ control voltage between the two output terminals of the fail-safe circuit as long as the input ~~signal~~ contains the at least two different frequency signals ~~at the at least one input of the fail-safe circuit~~.

For similar reasons to those discussed above with respect to claim 16, as well as other reasons, claim 12 is believed to be clearly patentable over Auer et al. For similar and other reasons, claims 13-15, which depend from claim 12 and include significant additional distinguishing features, are also believed to be clearly patentable over Auer et al.

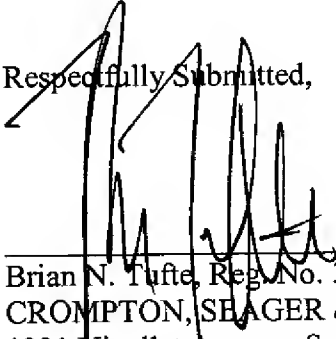
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Conclusion

It is submitted that, in light of the above remarks, all pending claims 1-20 are now in condition for allowance. Reconsideration and reexamination are respectfully requested. If a telephone interview would be of assistance, the Examiner is encouraged to contact the undersigned attorney at 612-359-9348.

Respectfully Submitted,

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Brian N. Tufte, Reg. No. 38,638
CROMPTON, SEAGER & TUFTE, LLC
1221 Nicollet Avenue, Suite 800
Minneapolis, Minnesota 55403-2420
Telephone: (612) 359-9348
Facsimile: (612) 359-9349